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Studies of the Higgs boson production in association with top quarks in final states with electrons, muons, and hadronically decaying tau leptons at 13TeV with the CMS experiment

The Higgs boson production in association with a top quark-antiquark pair signal was firstly observed in 2018 with a significance of 5.2 standard deviations using proton-proton collisions recorded at center-of-mass energy of 13 TeV by the CMS experiment at the CERN LHC. In the final states containing electrons, muons or tau leptons decaying to hadrons and a neutrino the signal of 4.7 sigma significance is measured using the full LHC Run 2 data. No significant fractional CP-odd contributions, parameterized by the quantity $|f^{Htt}_{CP}|$ are observed; the parameter is determined to be $|f^{Htt}_{CP}| = 0.59$ with an interval of (0.24, 0.81) at 68% confidence level. The further studies of differential signal distributions are ongoing.

Type of contribution

Poster

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